# Chapter 3 Review

TEST WEDNESDAY 9/17

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Distribute

1) $-5(7m + 11)$

$-5\cdot(7m) + (-5)(11)$

$-35m + (-55)$ or $-35m-55$

2) $6(3x - 3)$

$6\cdot3x - 6\cdot3$

$18x - 18$

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3) A 16-oz can of soup costs \$3.20. What is the cost per ounce?

$\frac{\$3.20}{16\text{ oz}} = \$.20/\text{oz}$

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4) A motorcycle is driving at a speed of 45 mi/hr. What is the speed of the motorcycle in ft/min?

$\frac{45\text{ mi}}{1\text{ hr}} \times \frac{5280\text{ ft}}{1\text{ mi}} \times \frac{1\text{ hr}}{60\text{ min}}$

$= \frac{45\cdot5280\text{ ft}}{60\text{ min}} = 3960\text{ ft/min}$

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Solve the following proportions.
SHOW WORK

5) $\frac{2}{7} = \frac{8}{x}$

$2\cdot x = 8\cdot7$

$\frac{2x}{2} = \frac{56}{2}$

$x = 28$

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6) $\frac{(x-2)}{6} = \frac{3}{4}$

$4(x-2) = 3\cdot6$

$4x - 8 = 18$

$+8 \quad +8$

$\frac{4x}{4} = \frac{26}{4}$

$x = \frac{13}{2}$

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7) $\frac{(x-2)}{(x+3)} = \frac{4}{5}$

$5(x-2) = 4(x+3)$

$5x - 10 = 4x + 12$

$-4x \quad -4x$

$x - 10 = 12$

$+10 \quad +10$

$\boxed{x = 22}$

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8) $\left(\frac{2x}{3} + \frac{1}{2}\right) = \left(\frac{3}{4}\right) \cdot 12$ 2, 3, 4 LCM = 12

$\frac{24x}{3} + \frac{12}{2} = \frac{36}{4}$

$8x + 12 = 9$

$-12 \quad -12$

$\frac{8x}{8} = \frac{-3}{8}$ $\boxed{x = \frac{-3}{8}}$

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Solve the literal equation for the variable stated.

9) $ab + cd = e$ *for* b

$-cd \quad -cd$

$\frac{ab}{a} = \frac{e-cd}{a}$

$\boxed{b = \frac{e-cd}{a}}$

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10) $\frac{xy}{2} + a = b$ for x

$-a \quad -a$

$\frac{xy}{2} = (b-a)2$

$\frac{xy}{y} = \frac{2(b-a)}{y}$

$\boxed{x = \frac{2(b-a)}{y}}$

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Evaluate

11) $|-2x - 3y|$ for x = 2 and y = -1

$|-2(2) - 3(-1)|$

$|-4 - (-3)|$

$|-4 + 3|$

$|-1| = \boxed{1}$

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Evaluate

12) $(-2)^3$ $-8$

$(-2)(-2)(-2)$

$4 \cdot (-2)$

$-8$

13) $-(-2)^3$ $8$

$-((-2)(-2)(-2))$

$-(-8)$

$8$

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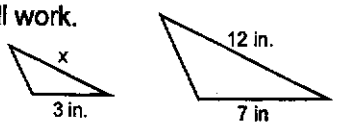
14) The pair of figures are similar. Find $x$. Round to the nearest tenth if necessary. Show all work.




$\frac{x}{12} = \frac{3}{7}$

$3x = 12 \cdot 7$

$\frac{3x}{3} = \frac{84}{3}$

$x = \frac{84}{3}$ in

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15) 40% of what number is 24?

$\frac{40}{100} = \frac{24}{x}$ $\quad \frac{40x}{40} = \frac{2400}{40}$

$x =$

16) What is 65% of 260?

$\frac{65}{100} = \frac{x}{260}$ $\quad 100x = 65 \cdot 260$

$\frac{100x}{100} = \frac{16900}{100}$

$x = 169$

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17) Find the ***percent of change*** in a pair of jeans marked down from \$50 to \$35. Describe the perecent of change as an increase or decrease. Round to nearest tenth if necessary.

$\frac{x}{100} = \frac{50-35}{50} =$

$\frac{x}{100} = \frac{15}{50}$ $\quad x = 30$

$\frac{50x}{50} = \frac{1500}{50}$

30% decrease

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18) The book store sold 250 books during the first week of June. They sold 285 in the second week. Find the ***percent of increase*** in sales?

$\frac{x}{100} = \frac{285-250}{250}$

$\frac{x}{100} = \frac{35}{250}$

$\frac{250x}{250} = \frac{3500}{250}$

$x = 14$

14%

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Find the square root of each number. Round to nearest tenth if necessary.

19) 121 $\pm 11$

20) 196 $\pm 14$

21) 225 $\pm 15$

22) 400 $\pm 20$

23) 75 $\pm 8.7$

24) 222,222 $\pm 471.4$

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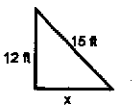
Use Pythagorean Theorem to find $x$. Round to nearest tenth if necessary.

25)




$x = \sqrt{15^2 - 12^2}$

$x = \sqrt{225 - 144}$

$x = \sqrt{81}$

$x = 9$ ft

26)


$x = \sqrt{8^2 - 5^2}$

$x = \sqrt{64 - 25}$

$x = \sqrt{39}$

$x = 6.2$ in

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27) Jake went to Wendy's and bought a drink for $2.00 and 3 cheeseburgers. The total bill was $13.25. ***WRITE and solve an equation*** to find the price of each cheeseburger.

$c$ = cost of a cheeseburger

equation: $2 + 3c = 13.25$

solve: $-2 \quad -2$

$\frac{3c}{3} = \frac{11.25}{3}$

$c = \$3.75$ cost of 1 cheeseburger

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28) Four consecutive numbers add up to 266. **Use an equation to find these integers.** Call the smallest integer $x$.

1st number $= x$

2nd " $= x + 1$

3rd " $= x + 2$

4th " $= x + 3$

$x + (x+1) + (x+2) + (x+3) = 266$

$4x + 6 = 266$

$-6 \quad -6$

$\frac{4x}{4} = \frac{260}{4}$

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$x = 65$

65, 66, 67, 66

29) Two planes leaves an airport 2 hours apart. (2nd plane takes off 2 hours after first plane). The first plane flies at a speed of 200 mi/hr and the 2nd plane travels at a speed of 240 mi/hr. Find how long it take the 2nd plane to catch up to the 1st plane (round to the nearest tenth of an hour). Use a table for r·t = d to help you.

| | r | t | d |
|---|---|---|---|
| plane 1 | 200 | $t$ | $200t$ |
| plane 2 | 240 | $t-2$ | $240(t-2)$ |

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When does plane 2 catch up?

so $d_1 = d_2$

$200t = 240(t-2)$

$200t = 240t - 480$

$-240t \quad -240t$

$\frac{-40t}{-40} = \frac{-480}{-40}$

$t = 12$

so plane 2 will catch up in $12 - 2$ hr or 10 hrs

30) You and a friend live 15 miles apart. You both leave your houses at the same time on your bikes to meet up. You ride 2 mi/hr faster then your friend and meet each other in 1.5 hours. What speed do you and your friend ride your bikes?

| | r | t | d |
|---|---|---|---|
| you | $r$ | 1.5 | $1.5r$ |
| friend | $r-2$ | 1.5 | $1.5(r-2)$ |

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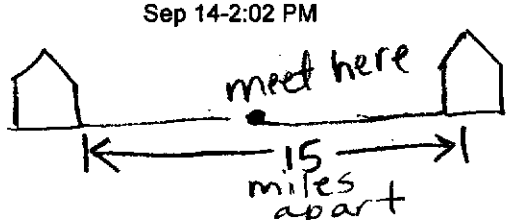


so $d_{you} + d_{friend} = 15$

$1.5r + 1.5(r-2) = 15$

$1.5r + 1.5r - 3 = 15$

$3r - 3 = 15$

$+3 \quad +3$

$\frac{3r}{3} = \frac{18}{3}$

$r = 6$ mi/hr your speed

$6 - 2 = 4$ mi/hr friend's speed